

REMARKS

Claims 82-86, 89, 90, and 97 are pending in the application. Claims 83, 89, 90, and 97 are canceled without prejudice, claims 82 and 84-86 are amended, and new claims 168-211 are added herein. Upon entry of the above amendments, claims 82, 84-86, and 168-211 will be pending.

Claims 82-86, 89, 90, and 97 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,583,144 to Barrows et al. (hereinafter "Barrows") in view of U.S. Patent No. 6,162,241 to Courey et al. (hereinafter "Courey"). Claim 82 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Barrows in view of Courey and U.S. Patent No. 5,700,848 to Soon-Shiong et al. (hereinafter "Soon-Shiong").

Amendments to Claims

Applicants amend claims 82 and 84-86. The amendments do not add new matter to the application.

New dependent claims 168-190, which depend from independent claim 82, are directed to particular embodiments of the tissue sealant or adhesive comprising a protein solution and a surfactant preparation recited in claim 82. Support for claims 168-190 is found at least at pages 11, 15-18, and 30-32 and in claims 83, 90, 91, 94 and 96-99 of the originally filed application. Applicants respectfully submit that claims 168-190 introduce no new matter and that claims 168-190 are in condition for allowance.

New independent claim 191 recites a tissue sealant or adhesive that comprises a protein solution and a lipid preparation. Dependent claims 192-211, which depend from claim 191, are directed to particular embodiments of the tissue sealant or adhesive recited in claim 191. Support for claims 192-211 is found at least at pages 11, 15-18, and 30-32 and in claims 82, 83, 90, 97, and 101-104 of the originally filed application. Applicants respectfully submit that claims 191-211 introduce no new matter and that claims 191-211 are in condition for allowance.

§ 103(a) Rejections

1. Claims 82-86, 89, 90, and 97 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Barrows in view of Courey. Applicants respectfully traverse the rejections for the following reasons.

Independent claim 82, as amended, is directed toward a tissue sealant or adhesive comprising a protein solution and a surfactant preparation. Dependent claims 84-86, which depend from claim 82, are directed toward particular embodiments of the tissue sealant or adhesive recited in claim 82.

Without knowledge of whether the Courey patent is entitled to the priority date of August 6, 1997, Applicants submit the enclosed 37 C.F.R. 1.131 Declaration stating that they conceived and actually reduced to practice in the United States the subject matter of independent claim 82, as amended, prior to August 6, 1997. Applicants submit that the Declaration removes Courey as a reference against the present application, thereby overcoming the rejection under 35 U.S.C. §103(a).

2. Claim 82 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Barrows in view of Courey and Soon-Shiong. The Examiner states that it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have formulated a composition of Barrows in view of Courey to comprise a lipid based on Soon-Shiong. For the reasons provided above, Courey is not a proper reference against claims of the present application under 35 U.S.C. § 103(a). Claim 82 as amended does not recite a lipid as a component of a tissue sealant or adhesive composition, thereby rendering the rejection moot.

New claim 191 recites a tissue sealant comprising a protein solution and a lipid preparation. For the reasons provided above, Courey is not a proper reference against claims of the present application under 35 U.S.C. § 103(a). Applicants respectfully submit that Barrows and Soon-Shiong, alone or in combination, do not teach or suggest Applicants' claimed invention. "[T]o establish obviousness based on a combination of the elements disclosed in the prior art, there must be some suggestion, motivation, or teaching of the desirability of making the specific combination that was made by the applicant." *In re Kotzab*, 217 F.3d 1365, 1370 (Fed.

Cir. 2000). Furthermore, “[t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.” *In re Mills*, 916 F.2d 680, 682 (Fed. Cir. 1990) (citing *In re Gordon*, 733 F.2d, 900, 902 (Fed. Cir. 1984)).

Barrows reports an “adhesive composition . . . made of two components, a buffered basic protein solution and a bifunctional crosslinking agent.” (Barrows, col. 3, lines 9-11) The crosslinking agent “react[s] or chemically bind[s] to free primary or secondary amine groups of a protein.” (Barrows, col. 4, lines 39-40).

Soon-Shiong reports “biocompatible materials capable of undergoing free radical polymerization [having] the formula: A-X wherein A is selected from a polysaccharide, lipid, or polycation, [and] X is a moiety containing a carbon-carbon double bond or triple bond capable of free-radical polymerization . . .” (Soon-Shiong, col. 4, lines 53-60). The polymerization of the biocompatible materials “may be initiated by light or other forms of energy using appropriate initiators.” (Soon-Shiong, col. 4, lines 45-46).

The present claims do not recite a lipid that is cross-linked to form a sealant or adhesive. Rather, according to the claims, the lipid is included to modify the physical properties of a sealant or adhesive that includes a cross-linked protein, for example, to increase the wetting of the sealant or adhesive to a hydrophobic surface, or to increase the elasticity of the sealant or adhesive. (See Application, page 15, line 29 to page 16, line 1). Barrows does not teach or suggest the use of a lipid to modify the physical properties of an adhesive composition based on a cross-linked protein. Soo-Shiong does not teach or suggest the use of a lipid to modify the physical properties of an adhesive that contains another cross-linked component. Furthermore, Barrows does not teach or suggest the need for a second cross-linked molecule (such as a lipid, for example) to perform the same function as the protein, and Soon-Shiong does not teach or suggest the need for another cross-linked molecule (such as a protein, for example) to perform the same function as the lipid. Therefore, one skilled in the art would not be motivated to combine a protein and lipid according to Barrows and Soon-Shiong, respectively.

Accordingly, Applicants submit that there is no motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine

Barrows and Soon-Shiong. Applicants respectfully submit that claims 191 and claims 192-211 , which depend therefrom, are allowable over Barrows in view of Courey and Soon-Shiong, thereby overcoming the rejection under 35 U.S.C. §103(a).

INFORMATION DISCLOSURE STATEMENT

In accordance with the provisions of 37 C.F.R. 1.97 and 1.98, Applicants hereby make of record the patents and publications listed on the accompanying Form PTO-1449, and other information contained herein, for consideration by the Examiner in connection with the examination of the above-identified patent application. Copies of the patents and publications are enclosed. Applicants respectfully request a copy of the enclosed Form PTO-1449 with each reference initialed by the Examiner with the next Office action.


CONCLUSION

Applicants respectfully request entry of this Amendment and Response and allowance of claims 82, 84-86, and 168-211 in due course. The Examiner is invited to contact Applicants' undersigned representative by telephone at the number listed below to discuss any outstanding issues.

Respectfully submitted,

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MARKED-UP VERSION OF CLAIMS

82. (Amended) A platelet-free ~~composition for use as a tissue sealant or adhesive comprising a protein solution and at least one preparation selected from the group consisting of a surfactant preparation and a lipid preparation.~~

84. (Amended) The tissue sealant or adhesive according to composition of claim 82, wherein the protein is selected from the group consisting of albumin, collagen, gelatin, globulin, elastin, protamine, and histone.

85. (Amended) The tissue sealant or adhesive according to composition of claim 84, wherein the concentration of the protein is between about 3% (w/w) and about 55-50% (w/w).

86. (Amended) The tissue sealant or adhesive according to composition of claim 82, wherein the protein comprises albumin and the concentration of the albumin is between about 25% (w/w) and about 50% (w/w).